

**WHAT IS CLAIMED IS:**

**CLAIMS**

1. An apparatus operable to schedule measurement for cells in a plurality of wireless communication systems, comprising:

a controller operative to categorize cells in a first wireless communication system based on a plurality of states, prioritize the plurality of states, prioritize cells in a second wireless communication system relative to the plurality of states, select a cell in the first system or the second system based on priorities of the cells in the first and second systems, and schedule the selected cell for measurement in next available frame; and

a demodulator operative to make measurement for the selected cell in the next available frame.

2. The apparatus of claim 1, wherein the controller is operative to update states of the cells in the first system based at least on measurement results obtained from prior frames.

3. The apparatus of claim 2, wherein the controller is operative to update cells in the states of the cells in the first system are further based on information for number of failed attempts to acquire timing information, number of failed attempts to acquire cell identification, and elapsed time since last selection for measurement.

4. The apparatus of claim 1, wherein the controller is further operative to rank cells in the first system with same state, for each of the plurality of states, and to select a cell for measurement further based on the ranking of the cells in the first system.

5. The apparatus of claim 1 and implemented within a wireless communication device.

6. The apparatus of claim 1, wherein the first and second systems utilize different radio access technologies (RATs).

7. The apparatus of claim 1, wherein the first system is a Global System for Mobile Communications (GSM) system and the second system is a Wideband Code Division Multiple Access (W-CDMA) system.

8. A method of scheduling measurement for cells in a plurality of wireless communication systems, comprising:

categorizing cells in a first wireless communication system based on a plurality of states;

prioritizing the plurality of states;

prioritizing cells in a second wireless communication system relative to the plurality of states;

selecting a cell in the first system or the second system based on priorities of the cells in the first and second systems; and

scheduling the selected cell for measurement in next available frame.

9. The method of claim 8, wherein the first system is a Global System for Mobile Communications (GSM) system and the second system is a Wideband Code Division Multiple Access (W-CDMA) system.

10. The method of claim 8, wherein the cells in the second system are periodically scheduled for measurement.

11. The method of claim 8, further comprising:

updating states of the cells in the first system based at least on measurement results obtained from prior frames.

12. The method of claim 8, wherein the plurality of states include an *Unknown* state, a *Known Confirmed* state, and a *Known Unconfirmed* state, the *Unknown* state including cells in the first system for which timing information and cell identification are not known, the *Known Confirmed* state including cells in the first

system for which timing information is known and cell identification has been confirmed within last T seconds, where T is a predetermined time period, and the *Known Unconfirmed* state including cells in the first system for which timing information is known and cell identification has not been confirmed within last T seconds.

13. The method of claim 12, wherein timing information for a cell in the first system is obtained by detecting a frequency correction channel (FCCH) and cell identification is obtained by decoding a synchronization channel (SCH).

14. The method of claim 12, wherein cells with the *Known Confirmed* state are not scheduled for measurement.

15. The method of claim 12, wherein cells with the *Known Unconfirmed* state are given higher priority than cells with the *Unknown* state.

16. The method of claim 12, wherein the plurality of states further include a *Strong SCH Unknown* state and an *SCH Unknown* state, the *Strong SCH Unknown* state including cells in the first system for which timing information is known and cell identification is not known and which are among M strongest received cells in the first system, where M is a number greater than one, and the *SCH Unknown* state including cells in the first system for which timing information is known and cell identification is not known and which are not among the M strongest received cells in the first system.

17. The method of claim 16, wherein the cells with the *Strong SCH Unknown* state are given first priority, the cells with the *SCH Unknown* state are given second priority, the cells with the *Known Unconfirmed* state are given third priority, and the cells with the *Unknown* state are given fourth priority among the cells in the first system.

18. The method of claim 17, wherein the cells in the second system are given higher priority than the cells with the *Known Unconfirmed* state and lower priority than the cells with the *SCH Unknown* state.

19. The method of claim 12, wherein the plurality of states further include a *Strong FCCH Unknown* state and an *FCCH Unknown* state, the *Strong FCCH Unknown* state including cells in the first system for which timing information and cell identification are not known and which are among M strongest received cells in the first system, where M is a number greater than one, and the *FCCH Unknown* state including cells in the first system for which timing information and cell identification are not known and which are not among the M strongest received cells in the first system.

20. The method of claim 19, wherein cells with the *Strong FCCH Unknown* state and cells with the *FCCH Unknown* state transition to the *Unknown* state after X failed attempt to acquire timing information, where X is one or greater.

21. The method of claim 8, wherein the cells in the second system are given higher priority than the cells in the first system if a designated flag is set.

22. The method of claim 8, further comprising:  
ranking cells in the first system with same state, for each of the plurality of states, and wherein the selecting is further based on the ranking of the cells in the first system.

23. The method of claim 22, wherein a highest-ranking cell with highest priority is selected for measurement in the next available frame.

24. The method of claim 23, wherein the highest-ranking cell with the highest priority is selected for measurement only if a frame that is used to make the measurement for the cell is potentially aligned with the next available frame.

25. The method of claim 22, wherein the cells in the first system with the same state are ranked based on received signal strength.

26. The method of claim 22, wherein the cells in the first system with the same state are ranked based on elapsed time since last measurement.

27. The method of claim 12, further comprising:

arranging cells with the *Unknown* state into a first group of A strongest received cells and a second group of cells, where A is a number greater than one, and wherein the A cells in the first group are selected prior to selecting a cell in the second group.

28. The method of claim 27, wherein the second group includes B next strongest received cells with the *Unknown* state, where B is a number greater than one, wherein a third group includes remaining cells with the *Unknown* state, and wherein the B cells in the second group are selected prior to selecting a cell in the third group.

29. An apparatus operable to schedule measurement for cells in a plurality of wireless communication systems, comprising:

means for categorizing cells in a first wireless communication system based on a plurality of states;

means for prioritizing the plurality of states;

means for prioritizing cells in a second wireless communication system relative to the plurality of states;

means for selecting a cell in the first system or the second system based on priorities of the cells in the first and second systems; and

means for scheduling the selected cell for measurement in next available frame.

30. The apparatus of claim 29, further comprising:

means for updating states of the cells in the first system based at least on measurement results obtained from prior frames.

31. The apparatus of claim 29, further comprising:

means for ranking cells in the first system with same state, for each of the plurality of states, and wherein a cell in the first system or the second system is selected further based on the ranking of the cells in the first system.

32. A processor readable media for storing instructions operable in a wireless device to:

categorize cells in a first wireless communication system based on a plurality of states;

prioritize the plurality of states;

prioritize cells in a second wireless communication system relative to the plurality of states;

select a cell in the first system or the second system based on priorities of the cells in the first and second systems; and

schedule the selected cell for measurement in next available frame.